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U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

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INTERNATIONAL APPLICATION NO.

PCT/FR00/02714

INTERNATIONAL FILING DATE

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PRIORITY DATE CLAIMED

October 7, 1999

TITLE OF INVENTION

COSMETIC COMPOSITION COMPRISING AT LEAST ONE CATION,
ONE LIQUID FATTY ALCOHOL AND AT LEAST ONE CERAMIDE-
TYPE COMPOUND AND METHOD USING SAME

APPLICANT(S) FOR DO/EO/US

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Applicant(s) herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c)(2)).
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed with the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371 (c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154 (d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)).
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☒ Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A Substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154 (d)(4).
19. ☐ A second copy of the English language translation of the international application 35 U.S.C. 154 (d)(4).
20. ☒ Other items or information:
 - a. ☒ Copy of cover page of International Publication No. WO 01/24767
 - b. ☐ Copy of Notification of Missing Requirements.

ANALYSIS OF THE DATA FROM THE 1980-1981
CENSUS OF THE UNITED STATES

WO 01/24767

PCT/FR00/02714

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COSMETIC COMPOSITION COMPRISING AT LEAST ONE CATION,
ONE LIQUID FATTY ALCOHOL AND AT LEAST ONE CERAMIDE-TYPE
COMPOUND AND METHOD USING SAME

The present invention relates to a cosmetic
5 composition for the treatment of keratinous materials
such as hair, comprising at least one cationic
surfactant, at least one liquid fatty alcohol and at
least one ceramide-type compound and to the method of
nontherapeutic treatment using this composition.

10 Hair formulations which make it possible to
treat hair damaged by adverse weather conditions or
physical (blow drying, combing, and the like) or
chemical (dyeing, permanent waving, and the like) hair
treatments.

15 One of the means commonly used for improving
the disentangling and softness of this hair consists in
using care compositions, and then rinsing the hair with
water. In general, these compositions are used after a
shampoo, optionally preceded by one of the above
20 treatments.

There have already been used for this purpose
Ceramides or glyceroceramides which have been combined
with cholesterol esters with the aim of protecting the
hair fiber. The application of the latter compositions
25 or of the ceramides alone to the hair leads
nevertheless to inadequate cosmetic performances, both
on wet hair and on dry hair.

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Ceramides are generally formulated in thick compositions (cream or gel) containing thickeners with the aim of improving the stability and the suspension of the ceramides in aqueous compositions.

5 Liquid products apply better to the hair and become homogeneously distributed. However, it is difficult to obtain stable aqueous liquid compositions, containing water-insoluble compounds such as ceramide-type compounds.

10 Now, the applicant has discovered, surprisingly, that by using compositions containing at least one cationic surfactant, at least one liquid fatty alcohol in combination with ceramide-type compounds, stable liquid compositions were obtained
15 which exhibited substantial improvement in cosmetic performances both on wet hair and on dry hair.

In particular, the cosmetic properties such as the property of lending suppleness and sleekness to the fibres with no increase in weight or with no greasy
20 effect, of softness and of glossiness are superior to those of a composition containing a solid fatty alcohol generally used for improving the stability of compositions. Furthermore, this composition does not require an exposure time.

25 This discovery forms the basis of the present invention.

The subject of the invention is therefore a liquid cosmetic composition intended for the treatment

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of keratinous materials, in particular hair,
characterized in that it comprises, in a cosmetically
acceptable aqueous medium, at least one cationic
surfactant, at least one liquid fatty alcohol and at
5 least one ceramide-type compound.

The subject of the invention is also the use
of the composition defined above for protecting
keratinous materials, in particular the hair, from
physical or chemical attacks.

10 These composition make it possible to improve
the cosmetic properties, in particular the softness and
the sleekness, of the hair.

The expression liquid composition is
understood to mean compositions having a viscosity of
15 less than or equal to 1 000 cpoises (1 Pa.s) and
preferably of between 10 and 500 cpoises (0.01 and
0.5 Pa.s) and more particularly between 10 and 100 cps
(0.01 and 0.1 Pa.s).

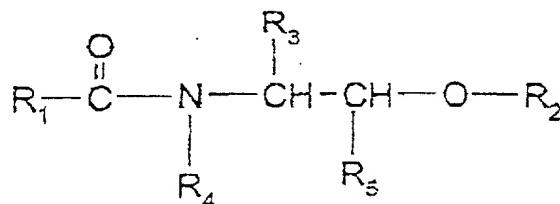
The viscosity is measured at 25°C with a
20 Rheomat viscometer with a No. 1 needle, at a speed of
rotation of 200 revolutions/min, the measurement being
carried out after 30 seconds of rotation (time after
which stabilization of the viscosity and of the speed
of rotation of the rotor is observed).

25 According to the present invention, ceramide-
type compound is understood to mean natural or
synthetic ceramides and/or glycoceramides and/or
pseudoceramides and/or neoceramides.

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Ceramide-type compounds are for example described in the patent applications DE4,424,530; DE4,424,533; DE4,402,929; DE4,420,736; WO95/23807; WO94/07844; EP-A-0,646,572; WO95/16665; FR-2,673,179; EP-A-0,227,994; WO94/07844; WO94/24097 and WO94/10131 whose teachings are included herein by way of reference.

Ceramide-type compounds which can be used according to the present invention preferably correspond to the general formula (I):



in which:

- R₁ denotes:

- either a saturated or unsaturated, linear or branched, C₁-C₅₀, preferably C₅-C₅₀, hydrocarbon radical, it being possible for this radical to be substituted with one or more hydroxyl groups optionally esterified by an acid R₇COOH, R₇ being an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C₁-C₃₅ hydrocarbon radical, it being possible for the hydroxyl(s) of the R₇ radical to be esterified by an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C₁-C₃₅ fatty acid;

- or a radical $R''-(NR-CO)-R'$, R denotes a hydrogen atom or a mono or polyhydroxylated, preferably monohydroxylated, C_1-C_{20} hydrocarbon radical, R' and R'' are hydrocarbon radicals of which the sum of the carbon
5 atoms is between 9 and 30, R' being a divalent radical;

- or a radical $R_8-O-CO-(CH_2)_p$, R_8 denotes a C_1-C_{20} hydrocarbon radical, p is an integer varying from 1 to 12;

- R_2 is chosen from a hydrogen atom, a saccharide-type
10 radical, in particular a (glycosyl) $_n$, (galactosyl) $_m$ or sulfogalactosyl radical, a sulfate or phosphate residue, a phosphorylethylamine radical and a phosphorylethylammonium radical, in which n is an integer varying from 1 to 4 and m is an integer varying
15 from 1 to 8;

- R_3 denotes a hydrogen atom or a hydroxylated or nonhydroxylated, saturated or unsaturated, C_1-C_{33} hydrocarbon radical, it being possible for the hydroxyl(s) to be esterified by an inorganic acid or an
20 acid R_7COOH , R_7 having the same meanings as above, it being possible for the hydroxyl(s) to be etherified by a (glycosyl) $_n$, (galactosyl) $_m$, sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical, it being also possible for R_3 to be substituted
25 with one or more C_1-C_{14} alkyl radicals;
preferably, R_3 denotes a $C_{15}-C_{26}$ α -hydroxyalkyl radical, the hydroxyl group being optionally esterified by a $C_{16}-C_{30}$ α -hydroxy acid;

- R_4 denotes a hydrogen atom, a methyl or ethyl radical, an optionally hydroxylated, linear or branched, saturated or unsaturated, C_3 - C_{50} hydrocarbon radical, a radical $-CH_2-CHOH-CH_2-O-R_6$ in which R_6 denotes a C_{10} - C_{26} hydrocarbon radical or a radical $R_8-O-CO-(CH_2)_p$, R_8 denotes a C_1 - C_{20} hydrocarbon radical, p is an integer varying from 1 to 12,
- R_5 denotes a hydrogen atom or an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C_1 - C_{30} hydrocarbon radical, it being possible for the hydroxyl(s) to be etherified by a (glycosyl) $_n$, (galactosyl) $_m$, sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical;
- with the proviso that when R_3 and R_5 denote hydrogen or when R_3 denotes hydrogen and R_5 denotes methyl, then R_4 does not denote a hydrogen atom, or a methyl or ethyl radical.

Among the compounds of formula (I), the ceramides and/or glycoceramides whose structure is described by DOWNING in Journal of Lipid Research Vol. 35, 2060-2068, 1994, or those described in French patent application FR-2,673,179, whose teachings are included herein by way of reference, are preferred.

The compounds of the ceramide type which are more particularly preferred according to the invention are the compounds of formula (I) for which R_1 denotes a saturated or unsaturated alkyl derived from optionally

hydroxylated C₁₄-C₂₂ fatty acids; R₂ denotes a hydrogen atom; and R₃ denotes an optionally hydroxylated linear C₁₁-17, preferably C₁₃-15, radical.

Such compounds are for example:

- 5 - 2-(N-linoleoylamino)-1,3-octadecanediol,
 - 2-(N-oleoylamino)-1,3-octadecanediol,
 - 2-(N-palmitoylamino)-1,3-octadecanediol,
 - 2-(N-stearoylamino)-1,3-octadecanediol,
 - 2-(N-behenoylamino)-1,3-octadecanediol,
 - 10 - 2-[N-(2-hydroxypalmitoyl)amino]-1,3-octadecanediol,
 - 2-(N-stearoylamino)-1,3,4-octadecanetriol
- and in particular N-stearoylphytyosphingosine,
- 2-(N-palmitoylamino)-1,3-hexadecanediol
- 15 or mixtures of these compounds.

Specific mixtures, such as, for example, mixtures of ceramide(s) 2 and ceramide(s) 5 according to the DOWNING classification, can also be used.

- It is also possible to use the compounds of
- 20 formula (I) for which R₁ denotes a saturated or unsaturated alkyl radical derived from C₁₂-C₂₂ fatty acids; R₂ denotes a galactosyl or sulfogalactosyl radical; and R₃ denotes a saturated or unsaturated C₁₂-C₂₂ hydrocarbon radical and preferably a group
- 25 -CH=CH-(CH₂)₁₂-CH₃.

By way of example, there may be mentioned the product consisting of a mixture of glycoceramides, sold

under the tradename GLYCOCER by the company WAITAKI
INTERNATIONAL BIOSCIENCES.

It is also possible to use the compounds of
formula (I) described in patent applications

5 EP-A-0,227,994, EP-A-0,647,617, EP-A-0,736,522 and
WO94/07844.

Such compounds are, for example, QUESTAMIDE H
(bis-(N-hydroxyethyl-N-cetyl)malonamide) sold by the
company QUEST, and cetylic acid N-(2-hydroxyethyl)-N-
10 (3-cetyloxy-2-hydroxypropyl)amide.

It is also possible to use the N-docosanoyl-
N-methyl-D-glucamine described in patent application
WO94/24097.

The concentration of ceramide-type compounds
15 may vary between 0.0001% and 20% by weight
approximately relative to the total weight of the
composition and preferably between 0.001 and 10%
approximately and still more preferably between 0.005
and 3% by weight.

20 The fatty alcohols which are liquid at a
temperature of less than 30°C are chosen in particular
from linear or branched, saturated or unsaturated,
C₁₀-C₃₀ liquid fatty alcohols.

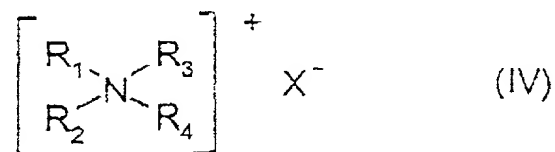
More particularly, the liquid fatty alcohols
25 are chosen from lauryl alcohol, myristyl alcohol,
isomyristyl alcohol, isostearyl alcohol, isocetyl
alcohol, isoarachidyl alcohol, 2-octyldodecanol,
2-butyloctanol and oleyl alcohol, and mixtures thereof.

Preferably, the fatty alcohol is chosen from isostearyl alcohol and isocetyl alcohol.

The concentration of liquid fatty alcohols according to the invention may vary between 0.5% and 10% by weight approximately relative to the total weight of the composition, and preferably between 1 and 10% approximately and more preferably still between 1.5 and 3% by weight.

The cationic surfactants may be chosen from:

- 10 A) the quaternary ammonium salts of the following general formula (IV):



in which X is an anion chosen from the group comprising halides (chloride, bromide or iodide) or (C₂-C₆)alkyl sulfates, more particularly methyl sulfate, phosphates, alkyl or alkylaryl sulfonates, anions derived from an organic acid such as acetate or lactate, and

- i) the radicals R₁ to R₃, which may be identical or different, represent a linear or branched aliphatic radical comprising from 1 to 4 carbon atoms, or an aromatic radical such as aryl or alkylaryl. The aliphatic radicals may comprise heteroatoms such as in particular oxygen, nitrogen, sulfur or halogens. The aliphatic radicals are for example chosen from alkyl, alkoxy and alkylamide radicals.

R_4 denotes a linear or branched alkyl radical comprising from 20 to 30 carbon atoms.

Preferably, the cationic surfactant is a salt (for example chloride) of behenyltrimethylammonium.

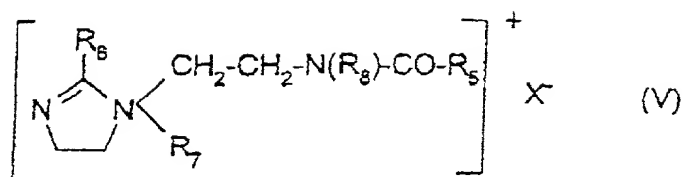
- 5 ii) the radicals R_1 and R_2 , which may be identical or different, represent a linear or branched aliphatic radical comprising from 1 to 4 carbon atoms, or an aromatic radical such as aryl or alkylaryl. The aliphatic radicals may comprise heteroatoms such as in particular oxygen, nitrogen, sulfur or halogens. The aliphatic radicals are for example chosen from alkyl, alkoxy, alkylamide and hydroxyalkyl radicals comprising from about 1 to 4 carbon atoms;

- 10 R_3 and R_4 , which are identical or different, denote a linear or branched alkyl radical comprising from 12 to 30 carbon atoms, said radical comprising at least one ester or amide functional group.

- R_3 and R_4 are in particular chosen from $(C_{12}-C_{22})$ alkylamido (C_2-C_6) alkyl and $(C_{12}-C_{22})$ alkyl acetate radicals.

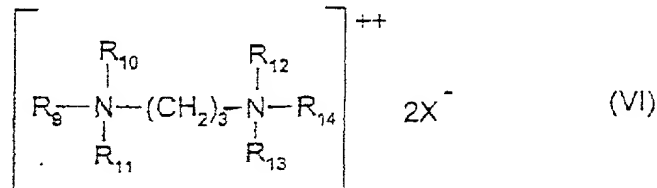
Preferably, the cationic surfactant is a salt (for example chloride) of stearamidopropyl dimethyl (myristylacetate) ammonium.

- B) - the quaternary ammonium salts of imidazolinium, such as for example that of the following formula (V):



in which R₅ represents an alkenyl or alkyl radical comprising from 8 to 30 carbon atoms which are for example derived from tallow fatty acids, R₆ represents a hydrogen atom, a C₁-C₄ alkyl radical or an alkenyl or alkyl radical comprising from 8 to 30 carbon atoms, R₇ represents a C₁-C₄ alkyl radical, R₈ represents a hydrogen atom, a C₁-C₄ alkyl radical, X is an anion chosen from the group including halides, phosphates, acetates, lactates, alkyl sulfates and alkyl or alkylaryl sulfonates. Preferably, R₅ and R₆ denote a mixture of alkenyl or alkyl radicals comprising from 12 to 21 carbon atoms which are for example derived from tallow fatty acids, R₇ denotes methyl and R₈ denotes hydrogen. Such a product is for example Quaternium 27 (CTFA 1997) or Quaternium 83 (CTFA 1997) marketed under the names "REWOQUAT" W 75, W90, W75PG, W75HPG by the company WITCO.

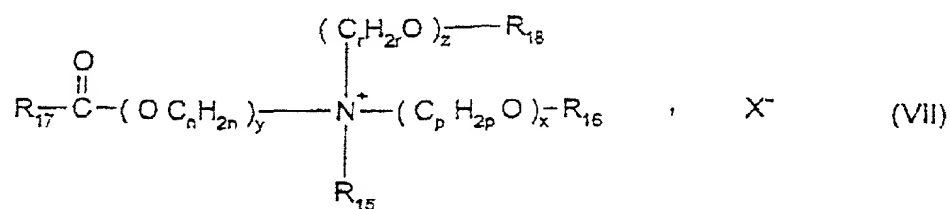
C) - the quaternary diammonium salts of formula (VI):



in which R₉ denotes an aliphatic radical comprising from about 16 to 30 carbon atoms, R₁₀, R₁₁, R₁₂, R₁₃ and R₁₄,

which are identical or different, are chosen from hydrogen or an alkyl radical comprising from 1 to 4 carbon atoms, and X is an anion chosen from the group comprising halides, acetates, phosphates, nitrates and methyl sulfates. Such quaternary diammonium salts comprise in particular propanetallowdiammonium dichloride.

D) - the quaternary ammonium salts containing at least one ester functional group of the following formula (VII):



in which:

- R₁₅ is chosen from C₁-C₆ alkyl radicals and C₁-C₆ hydroxyalkyl or dihydroxyalkyl radicals;
- 15 - R₁₆ is chosen from:

- the radical $\text{R}_{19}-\overset{\text{O}}{\parallel}\text{C}-$
- the linear or branched, saturated or unsaturated, C₁-C₂₂ hydrocarbon radicals R₂₀,
- the hydrogen atom,

- 20 - R₁₈ is chosen from:

- the radical $\text{R}_{21}-\overset{\text{O}}{\parallel}\text{C}-$
- the linear or branched, saturated or unsaturated, C₁-C₆ hydrocarbon radicals R₂₂,
- the hydrogen atom,

- R_{17} , R_{19} and R_{21} , which are identical or different, are chosen from linear or branched, saturated or unsaturated, C_7 - C_{21} hydrocarbon radicals;
- n , p and r , which are identical or different, are
- 5 integers having values from 2 to 6;
- y is an integer having a value from 1 to 10;
- x and z , which are identical or different, are integers having values from 0 to 10;
- X^- is an organic or inorganic, simple or complex
- 10 anion;
- with the proviso that the sum $x + y + z$ has a value from 1 to 15, that when x has a value of 0, then R_{16} denotes R_{20} , and that when z has a value of 0, then R_{18} denotes R_{22} .
- 15 There are more particularly used the ammonium salts of formula (VII) in which:
- R_{15} denotes a methyl or ethyl radical,
- x and y are equal to 1;
- z is equal to 0 or 1;
- 20 - n , p and r are equal to 2;
- R_{16} is chosen from:
- the radical $R_{15}-\overset{\overset{O}{\parallel}}{C}-$
- the methyl, ethyl or C_{14} - C_{22} hydrocarbon radicals
- the hydrogen atom;
- 25 - R_{17} , R_{19} and R_{21} , which are identical or different, are chosen from saturated or unsaturated, linear or branched C_7 - C_{21} hydrocarbon radicals;

- R_{18} is chosen from:

- the radical $R_{21}-\overset{\overset{O}{\parallel}}{C}-$

Such compounds are for example marketed under the names DEHYQUART by the company HENKEL, STEPANQUAT by the company STEPAN, NOXAMIUM by the company CECA, REWOQUAT WE 18 by the company REWO-WITCO. Among the quaternary ammonium salts, behenyltrimethylammonium chloride, or stearamidopropyldimethyl (myristyl acetate) ammonium, which is marketed under the name "CERAPHYL 70" by the company VAN DYK, and Quaternium-27 or Quaternium-83, which are marketed by the company WITCO, are preferred.

The cationic surfactant is present in concentrations ranging from 0.2 to 10% by weight relative to the total weight of the composition and preferably from 0.5 to 5% by weight and more preferably between 1 and 3.5% by weight.

The composition of the invention may also contain at least one additive chosen from thickeners, perfumes, pearlescent agents, surfactants, preservatives, sunscreens, silicones, anionic or nonionic or cationic or amphoteric polymers, proteins, protein hydrolysates, fatty acids, fatty alcohols, hydroxy acids, vitamins, provitamins such as panthenol, vegetable, animal, mineral or synthetic oils and any other additive conventionally used in the cosmetic

field which does not affect the properties of the compositions according to the invention.

These additives are present in the composition according to the invention in proportions which may range from 0 to 50% by weight relative to the total weight of the composition. The precise quantity of each additive can be easily determined by persons skilled in the art according to its nature and its function.

The cosmetically acceptable aqueous medium may consists solely of water or of a mixture of water and at least one cosmetically acceptable solvent such as monoalcohols, polyalcohols, glycol ethers and mixtures thereof. The monoalcohols are in particular chosen from C₁-C₄ lower alcohols such as ethanol, isopropanol, tert-butanol, n-butanol; alkylene glycols such as propylene glycol, glycol ethers and mixtures thereof.

Preferably, the composition comprises from 50 to 95% by weight of water relative to the total weight of the composition.

The pH of the compositions is generally between 2 and 12 and preferably between 4 and 9. The pH may be conventionally adjusted to the desired value by adding a base (organic or inorganic base) to the composition, for example aqueous ammonia or a primary, secondary or tertiary (poly)amine such as monoethanolamine, diethanolamine, triethanolamine,

isopropanolamine or 1,3-propanediamine, or by adding an inorganic or organic acid, preferably a carboxylic acid such as for example citric acid.

The compositions in accordance with the invention may be more particularly used for the treatment of keratinous materials such as the hair, skin, eyelashes, eyebrows, nails, lips, scalp and more particularly the hair.

The subject of the invention is also a method for treating keratinous materials such as the skin or hair, characterized in that it consists in applying to the keratinous materials a cosmetic composition as defined above, and then in optionally rinsing with water.

Thus, this method according to the invention makes it possible to hold the hair style or to treat or care for the skin, the hair or any other keratinous material.

The compositions of the invention may also be provided in the form of a shampoo, of a conditioner to be rinsed out or not, of compositions for permanent waving, hair straightening, dyeing or bleaching, or in the form of rinse-out compositions, to be applied before or after shampooing, dyeing, bleaching, permanent waving or hair straightening or between the two stages of permanent waving or hair straightening.

The compositions of the invention can be used more especially as a hair composition whose application is optionally followed by rinsing with water.

Accordingly, the invention relates to the use
5 of this composition as or for the manufacture of a composition to be applied before or after any hair treatment such as shampooing, dyeing or bleaching, permanent waving or hair straightening.

The compositions according to the invention
10 may be used as leave-in products, in particular for holding the hair style, for hair shaping or for hair styling.

They are more particularly hair setting lotions, blow drying lotions, fixing compositions
15 (lacquers) and hair styling compositions.

The compositions may be packaged in various forms, especially in vaporizers, pump dispensers or in aerosol containers so as to allow application of the composition in vaporized form or in mousse form. Such
20 forms of packaging are suitable for example when it is desired to obtain a spray, a lacquer or a mousse for treating the hair.

When the composition according to the invention is packaged in aerosol form so as to obtain a
25 lacquer or an aerosol mousse, it comprises at least one propellant which may be chosen from volatile hydrocarbons such as n-butane, propane, isobutane, pentane, a chlorinated and/or fluorinated hydrocarbon

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and mixtures thereof. It is also possible to use, as propellant, carbon dioxide gas, nitrous oxide, dimethyl ether, nitrogen, compressed air and mixtures thereof.

In all the text which follows or in all the preceding text, the percentages expressed are by weight.

The invention will now be illustrated more fully with the aid of the following examples which cannot be considered as limiting it to the embodiments described.

In the examples, AS means active substance.

The compositions of the following examples are for example obtained by heating the fatty alcohol and ceramide mixture to 70-80°C and then adding the mixture of water and cationic surfactant heated to the same temperature; the mixture is then vigorously stirred with a turbine for about 10 minutes. The mixture is then allowed to cool, with stirring, to room temperature.

EXAMPLE 1

A rinse-out conditioner of the following composition was prepared:

Behenyltrimethylammonium chloride

(GENAMIN KDM-F from HOECHST CHIMIE) 2.4 g AS

Isostearyl alcohol 2 g

N-oleyldihydrosphingosine (ceramide) 0.4 g

Cetylstearyl alcohol (50/50 by weight) 0.5 g

Amine-containing silicone as an emulsion

(DC949 from DOW CORNING) 0.95 g AS

Perfume, preservatives qs

Demineralized water qs 100 g

The composition has a viscosity of 37 cps, it is stable for at least 8 days at 45°C. This composition is applied to hair which has been washed and wrung.

Hair treated with this composition has excellent

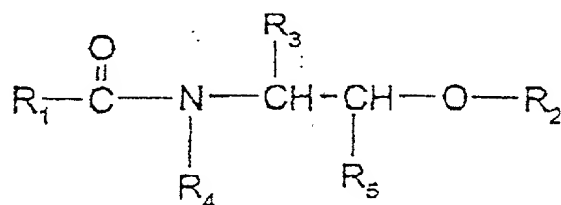
- 5 cosmetic properties of suppleness, softness, feel and gloss with no increase in weight. These effects are obtained with no exposure time.

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CLAIMS

1. A liquid cosmetic composition,
characterized in that it comprises, in a cosmetically
acceptable aqueous medium, at least one liquid fatty
5 alcohol, at least one ceramide-type compound and at
least one cationic surfactant.

2. The composition as claimed in claim 1,
characterized in that the ceramide-type compound
corresponds to the general formula (I):



10 in which:

- R₁ denotes:

- either a saturated or unsaturated, linear
or branched, C₁-C₅₀, preferably C₅-C₅₀, hydrocarbon
15 radical, it being possible for this radical to be
substituted with one or more hydroxyl groups optionally
esterified by an acid R₇COOH, R₇ being an optionally
mono- or polyhydroxylated, linear or branched,
saturated or unsaturated, C₁-C₃₅ hydrocarbon radical, it
20 being possible for the hydroxyl(s) of the R₇ radical to
be esterified by an optionally mono- or
polyhydroxylated, linear or branched, saturated or
unsaturated, C₁-C₃₅ fatty acid;

- or a radical $R''-(NR-CO)-R'$, R denotes a hydrogen atom or a mono or polyhydroxylated, preferably monohydroxylated, C_1-C_{20} hydrocarbon radical, R' and R'' are hydrocarbon radicals of which the sum of the carbon atoms is between 9 and 30, R' being a divalent radical;

- or a radical $R_8-O-CO-(CH_2)_p$, R_8 denotes a C_1-C_{20} hydrocarbon radical, p is an integer varying from 1 to 12;

- R_2 is chosen from a hydrogen atom, a saccharide-type radical, in particular a (glycosyl)_n, (galactosyl)_m or sulfogalactosyl radical, a sulfate or phosphate residue, a phosphorylethylamine radical and a phosphorylethylammonium radical, in which n is an integer varying from 1 to 4 and m is an integer varying from 1 to 8;

- R_3 denotes a hydrogen atom or a hydroxylated or nonhydroxylated, saturated or unsaturated, C_1-C_{33} hydrocarbon radical, it being possible for the hydroxyl(s) to be esterified by an inorganic acid or an acid R_7COOH , R_7 having the same meanings as above, it being possible for the hydroxyl(s) to be etherified by a (glycosyl)_n, (galactosyl)_m, sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical, it being also possible for R_3 to be substituted with one or more C_1-C_{14} alkyl radicals; preferably, R_3 denotes a $C_{15}-C_{26}$ α -hydroxyalkyl radical, the hydroxyl group being optionally esterified by a $C_{16}-C_{30}$ α -hydroxy acid;

- R_4 denotes a hydrogen atom, a methyl or ethyl radical, an optionally hydroxylated, linear or branched, saturated or unsaturated, C_3 - C_{50} hydrocarbon radical, a radical $-CH_2-CHOH-CH_2-O-R_6$ in which R_6 denotes a C_{10} - C_{26} hydrocarbon radical or a radical $R_8-O-CO-(CH_2)_p$, R_8 denotes a C_1 - C_{20} hydrocarbon radical, p is an integer varying from 1 to 12,
- R_5 denotes a hydrogen atom or an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C_1 - C_{30} hydrocarbon radical, it being possible for the hydroxyl(s) to be etherified by a (glycosyl) $_n$, (galactosyl) $_m$, sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical;
- with the proviso that when R_3 and R_5 denote hydrogen or when R_3 denotes hydrogen and R_5 denotes methyl, then R_4 does not denote a hydrogen atom, or a methyl or ethyl radical.

3. The composition as claimed in any one of the preceding claims, characterized in that the ceramide-type compound is chosen from the group consisting of:

- 2-(N-linoleoylamino)-1,3-octadecanediol,
- 2-(N-oleoylamino)-1,3-octadecanediol,
- 2-(N-palmitoylamino)-1,3-octadecanediol,
- 2-(N-stearoylamino)-1,3-octadecanediol,
- 2-(N-behenoylamino)-1,3-octadecanediol,

- 2-[N-(2-hydroxypalmitoyl)amino]-1,3-octadecanediol,

- 2-(N-stearoylamino)-1,3,4-octadecanetriol,

- 2-(N-palmitoylamino)-1,3-hexadecanediol,

5 or mixtures of these compounds.

4. The composition as claimed in either of claims 1 and 2, characterized in that the ceramide-type compound is chosen from bis(N-hydroxyethyl-N-cetyl)malonamide, N-(2-hydroxyethyl)-N-(3-cetyloxy-2-hydroxypropyl)amide of cetylic acid and N-docosanoyl-N-methyl-D-glucamine.

5. The composition as claimed in any one of the preceding claims, characterized in that the ceramide-type compound(s) are present in concentrations ranging from 0.0001 to 20% by weight relative to the total weight of the composition and preferably from 0.001 to 10% by weight and more preferably between 0.005 and 3% by weight.

6. The composition as claimed in any one of the preceding claims, characterized in that the liquid fatty alcohols are chosen from lauryl alcohol, myristyl alcohol, isomyristyl alcohol, isostearyl alcohol, isocetyl alcohol, isoarachidyl alcohol, 2-octyldodecanol, 2-butyloctanol and oleyl alcohol, and mixtures thereof.

7. The composition as claimed in the preceding claim, characterized in that the fatty

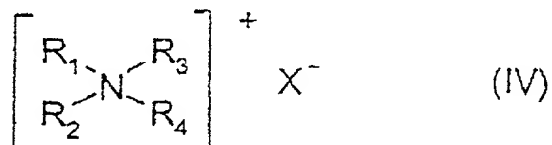
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alcohol is chosen from isostearyl alcohol and isocetyl alcohol.

8. The composition as claimed in any one of the preceding claims, characterized in that the concentration of liquid fatty alcohols varies between 0.5% and 10% by weight approximately relative to the total weight of the composition, and preferably between 1 and 10% approximately and more preferably still between 1.5 and 3% by weight.

9. The composition as claimed in any one of the preceding claims, characterized in that said cationic surfactant is chosen from:

A) the quaternary ammonium salts of the following general formula (IV):



in which X is an anion chosen from the group comprising halides (chloride, bromide or iodide) or (C₂-C₆)alkyl sulfates, more particularly methyl sulfate, phosphates, alkyl or alkylaryl sulfonates, anions derived from an organic acid such as acetate or lactate, and

i) the radicals R₁ to R₄, which may be identical or different, represent a linear or branched aliphatic radical comprising from 1 to 4 carbon atoms, or an aromatic radical such as aryl or alkylaryl. The

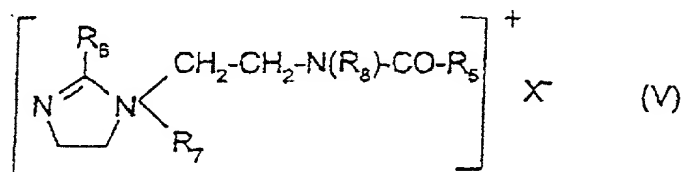
aliphatic radicals may comprise heteroatoms such as in particular oxygen, nitrogen, sulfur or halogens, R_4 denotes a linear or branched alkyl radical comprising from 20 to 30 carbon atoms.

- 5 ii) the radicals R_1 and R_2 , which may be identical or different, represent a linear or branched aliphatic radical comprising from 1 to 4 carbon atoms, or an aromatic radical such as aryl or alkylaryl. The aliphatic radicals may comprise heteroatoms such as in
10 particular oxygen, nitrogen, sulfur or halogens. The aliphatic radicals are for example chosen from alkyl, alkoxy, alkylamide and hydroxyalkyl radicals comprising from about 1 to 4 carbon atoms;

R_3 and R_4 , which are identical or different, denote a
15 linear or branched alkyl radical comprising from 12 to 30 carbon atoms, said radical comprising at least one ester or amide functional group.

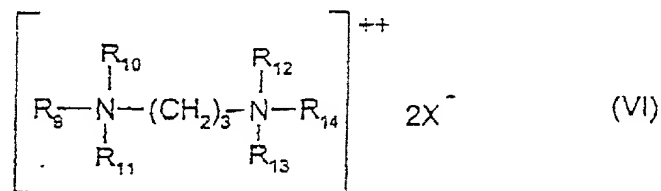
R_3 and R_4 are in particular chosen from
(C_{12} - C_{22})alkylamido(C_2 - C_6)alkyl and (C_{12} - C_{22})alkyl acetate
20 radicals.

B) - the quaternary ammonium salts of imidazolinium, such as for example that of the following formula (V):



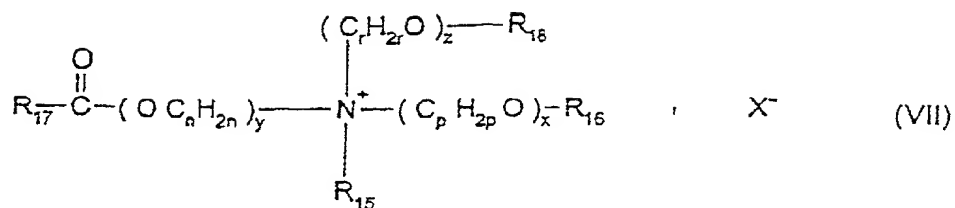
in which R_5 represents an alkenyl or alkyl radical comprising from 8 to 30 carbon atoms which are for example derived from tallow fatty acids, R_6 represents a hydrogen atom, a C_1 - C_4 alkyl radical or an alkenyl or alkyl radical comprising from 8 to 30 carbon atoms, R_7 represents a C_1 - C_4 alkyl radical, R_8 represents a hydrogen atom or a C_1 - C_4 alkyl radical, X is an anion chosen from the group including halides, phosphates, acetates, lactates, alkyl sulfates and alkyl or alkylaryl sulfonates.

C) - the quaternary diammonium salts of formula (VI):



in which R_9 denotes an aliphatic radical comprising from about 16 to 30 carbon atoms, R_{10} , R_{11} , R_{12} , R_{13} and R_{14} , which are identical or different, are chosen from hydrogen or an alkyl radical comprising from 1 to 4 carbon atoms, and X is an anion chosen from the group comprising halides, acetates, phosphates, nitrates and methyl sulfates. Such quaternary diammonium salts comprise in particular propanetallowdiammonium dichloride.

D) - the quaternary ammonium salts containing at least one ester functional group of the following formula (VII):



in which:

- R₁₅ is chosen from C₁-C₆ alkyl radicals and C₁-C₆ hydroxyalkyl or dihydroxyalkyl radicals;
- 5 - R₁₆ is chosen from:
 - the radical $\text{R}_{19}-\overset{\text{O}}{\parallel}{\text{C}}-$
 - the linear or branched, saturated or unsaturated, C₁-C₂₂ hydrocarbon radicals R₂₀,
 - the hydrogen atom,
- 10 - R₁₈ is chosen from:
 - the radical $\text{R}_{21}-\overset{\text{O}}{\parallel}{\text{C}}-$
 - the linear or branched, saturated or unsaturated, C₁-C₆ hydrocarbon radicals R₂₂
 - the hydrogen atom,
- 15 - R₁₇, R₁₉ and R₂₁, which are identical or different, are chosen from linear or branched, saturated or unsaturated, C₇-C₂₁ hydrocarbon radicals;
- n, p and r, which are identical or different, are integers having values from 2 to 6;
- 20 - y is an integer having a value from 1 to 10;
- x and z, which are identical or different, are integers having values from 0 to 10;
- X⁻ is an organic or inorganic, simple or complex anion;

with the proviso that the sum $x + y + z$ has a value from 1 to 15, that when x has a value of 0, then R_{16} denotes R_{20} , and that when z has a value of 0, then R_{18} denotes R_{22} .

5 10. The composition as claimed in any one of the preceding claims, characterized in that said cationic surfactant is chosen from behenyltrimethyl-ammonium salts, stearamidopropyl dimethyl (myristyl acetate) ammonium salts, Quaternium-27 and Quaternium-10 83.

11. The composition as claimed in any one of the preceding claims, characterized in that said cationic surfactant is present in concentrations ranging from 0.2 to 10% by weight relative to the total 15 weight of the composition and preferably from 0.5 to 5% by weight and more preferably between 1 and 3.5% by weight.

12. The composition as claimed in any one of the preceding claims, characterized in that the 20 cosmetically acceptable medium consists of water or a mixture of water and at least one cosmetically acceptable solvent.

13. The composition as claimed in claim 10, characterized in that the cosmetically acceptable 25 solvents are chosen from the group consisting of monoalcohols, polyalcohols, glycol ethers and mixtures thereof.

14. The composition as claimed in any one of claims 1 to 14, characterized in that it comprises, in addition, at least one additive chosen from thickeners, perfumes, pearlescent agents, preservatives,

5 sunscreens, anionic or nonionic or cationic or amphoteric polymers, proteins, protein hydrolysates, linear or branched chain C₁₆-C₄₀ fatty acids such as 18-methyleicosanoic acid, hydroxy acids, vitamins, panthenol and fatty esters.

10 15. The composition as claimed in any one of claims 1 to 14, characterized in that it is provided in the form of a shampoo, conditioner, composition for permanent waving, straightening, dyeing or bleaching the hair, rinse-out composition to be applied between
15 the two stages of permanent waving or hair straightening, or washing composition for the skin.

16. The use of a composition as defined in any one of claims 1 to 15, as or for the manufacture of a composition to be applied before or after any hair
20 treatment such as shampooing, dyeing or bleaching, permanent waving or hair straightening.

17. A method for treating keratinous materials, such as hair, characterized in that it consists in applying to said materials a cosmetic
25 composition as claimed in one of claims 1 to 15, and then in optionally rinsing with water.

18. The use of a composition as defined in any one of claims 1 to 15 for protecting keratinous

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materials, in particular the hair, from physical or chemical attacks.

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Declaration and Power of Attorney for Patent Application

Déclaration et Pouvoir pour Demand de Brevet

French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée:

- ☒ a été déposée le _____
sous le numéro de demande des Etats-Unis ou le
numéro de demande international PCT
_____ et modifiée
_____ (les cas échéant).

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

COSMETIC COMPOSITION COMPRISING AT LEAST
A CATION, A LIQUID FATTY ALCOHOL AND AT
LEAST A CERAMIDE TYPE COMPOUND AND
METHOD USING SAME

the specification of which is attached hereto unless the following box is checked:

- ☒ was filed on September 29, 2000 as United States Application Number or PCT International Application Number PCT/FR00/02714 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s)
Demande(s) de brevet antérieure(s)

11/287412	France
(Number)	(Country)
(Numéro)	(Pays)
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(Number)	(Country)
(Numéro)	(Pays)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(c) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)
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(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont laquelle est devenue disponible entre la date de dépôt de la demande antérieure, et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)
<hr/>	
(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International Application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed
Droit de priorité non revendiqué

7 October 1999	<input type="checkbox"/>
(Day/Month/Year Filed)	
(Jour/Mois/Année de dépôt)	
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(Day/Month/Year Filed)	<input type="checkbox"/>
(Jour/Mois/Année de dépôt)	

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International Application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International Application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose any or all information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Status) (patented, pending, abandoned)	
(Status) (breveté, en cours d'examen, abandonné)	
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(Status) (patented, pending, abandoned)	
(Status) (breveté, en cours d'examen, abandonné)	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIRS: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec L'Office des brevets et des marques: (mentionner le nom et le numéro d'enregistrement).

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this patent application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number):

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Signature d'inventeur	Date	Third Inventor's signature	Date
Domicile		Residence	
Nationalité:		Citizenship French	
Adresse postale:		Post Office Address Same as residence	